FIG. 1

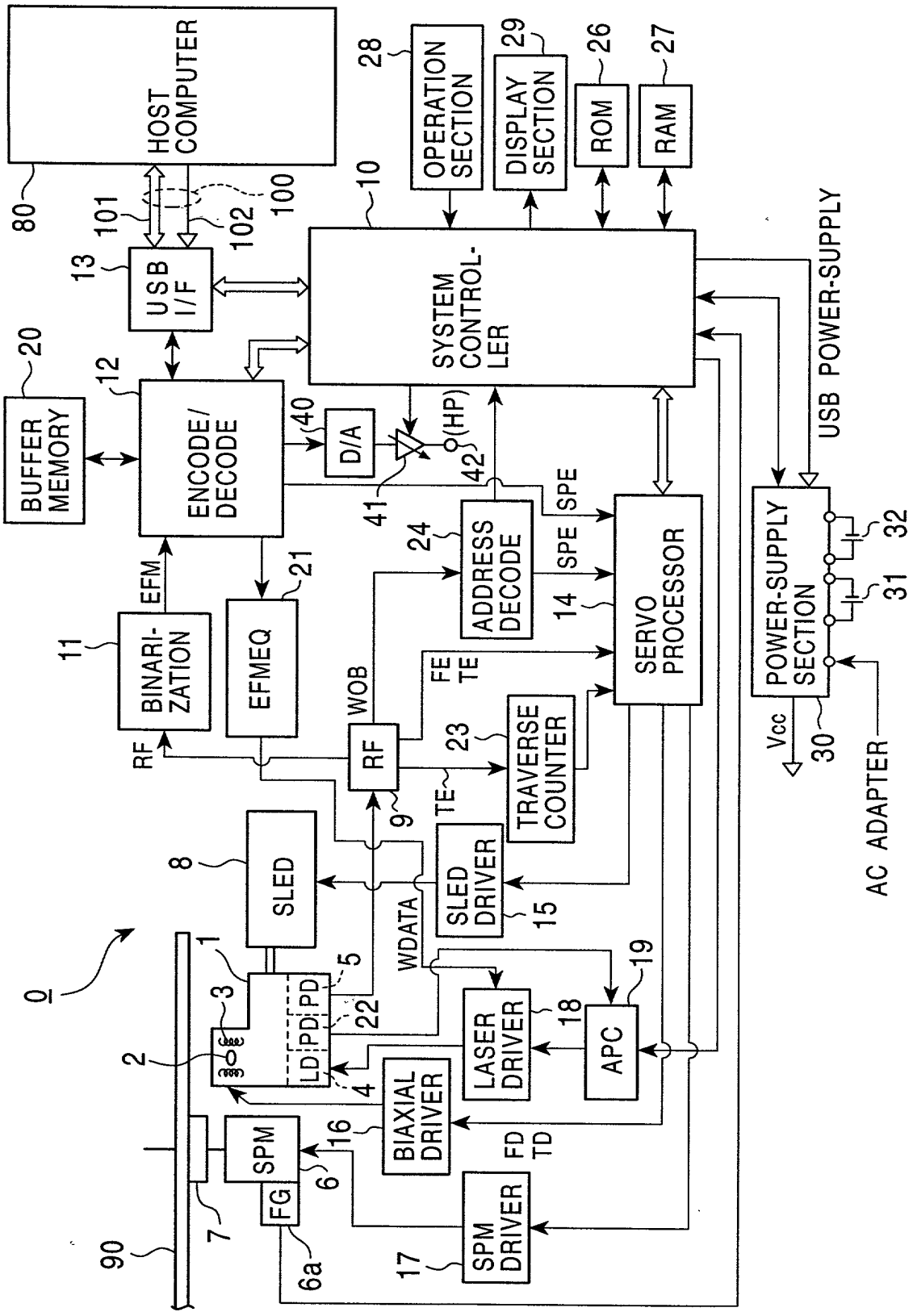

HOST COMPUTER
80
101
102
100
USB I/F
13
OPERATION SECTION
28
DISPLAY SECTION
29
ROM
26
RAM
27
10
SYSTEM CONTROL-LER
USB POWER-SUPPLY
20
BUFFER MEMORY
12
ENCODE/ DECODE
40
D/A
(HP)
42
41
SPE
24
ADDRESS DECODE
SPE
14
SERVO PROCESSOR
POWER-SUPPLY SECTION
32
31
30
Vcc
AC ADAPTER
EFM
11
BINARI-ZATION
21
EFMEQ
WOB
RF
FE
TE
23
TRAVERSE COUNTER
RF
9
TE
8
SLED
SLED DRIVER
15
WDATA
0
1
3
5
LD
PD
PD
22
2
4
LASER DRIVER
18
APC
19
BIAXIAL DRIVER
16
FD
TD
SPM
FG
6
7
6a
90
SPM DRIVER
17

FIG. 2

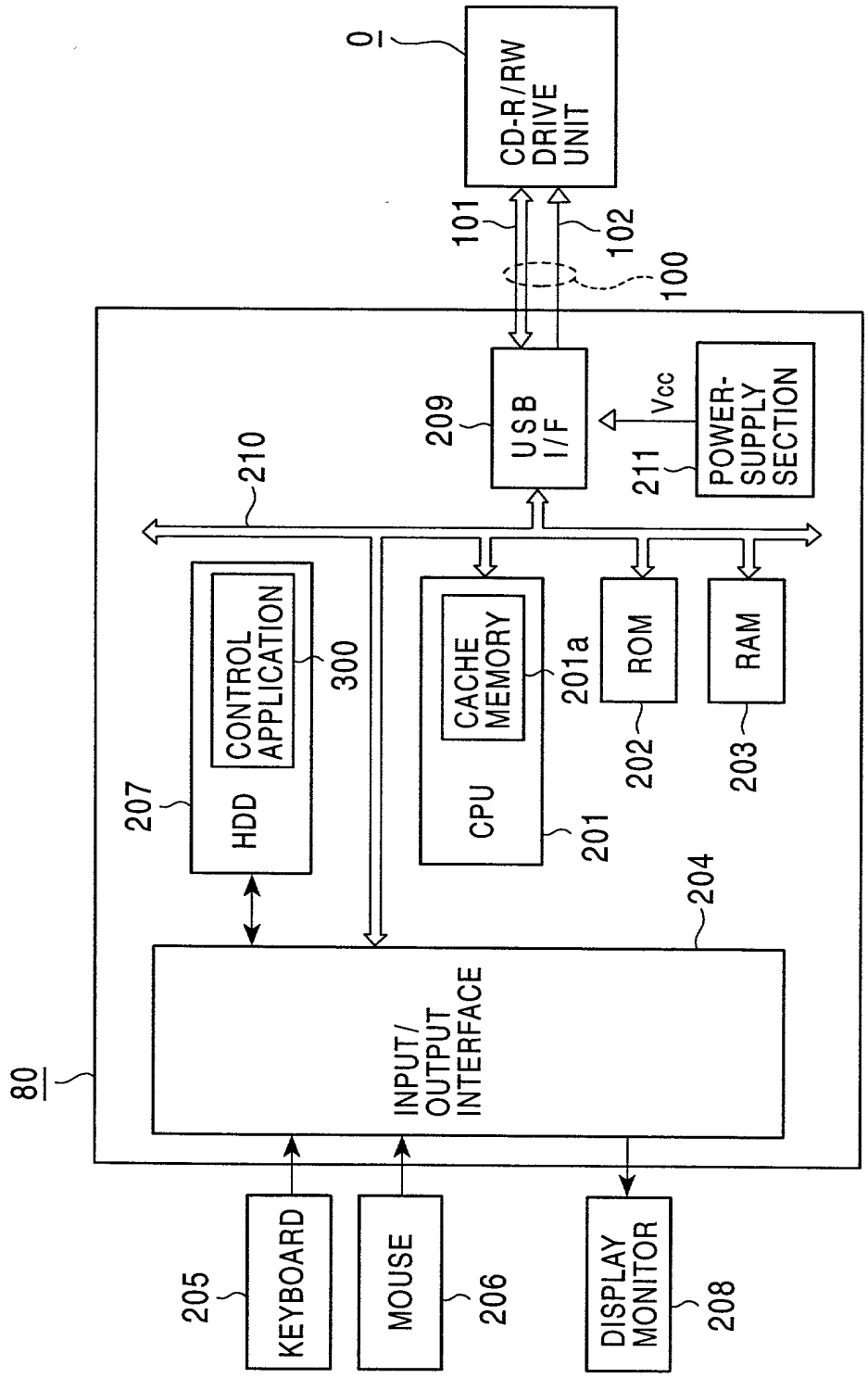

0
CD-R/RW DRIVE UNIT
101
102
100
209
USB I/F
Vcc
211
POWER-SUPPLY SECTION
210
207
HDD
CONTROL APPLICATION
300
CPU
CACHE MEMORY
201a
201
ROM
202
RAM
203
204
80
INPUT/ OUTPUT INTERFACE
205
KEYBOARD
MOUSE
206
DISPLAY MONITOR
208

FIG. 3

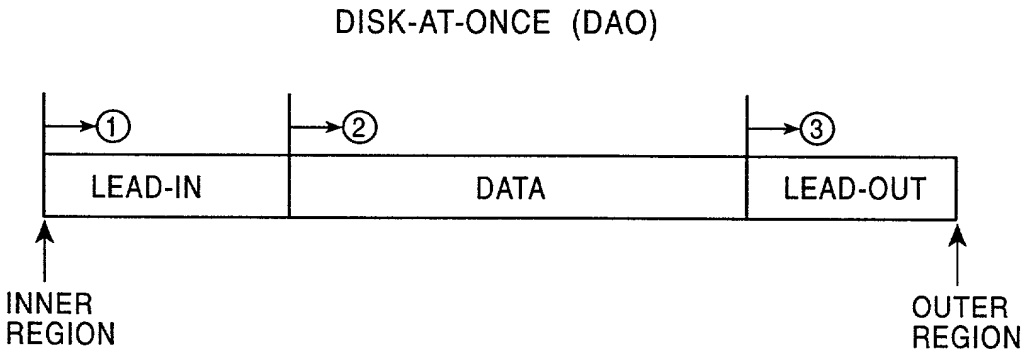

DISK-AT-ONCE (DAO)
①
②
③
LEAD-IN
DATA
LEAD-OUT
INNER REGION
OUTER REGION

FIG. 4

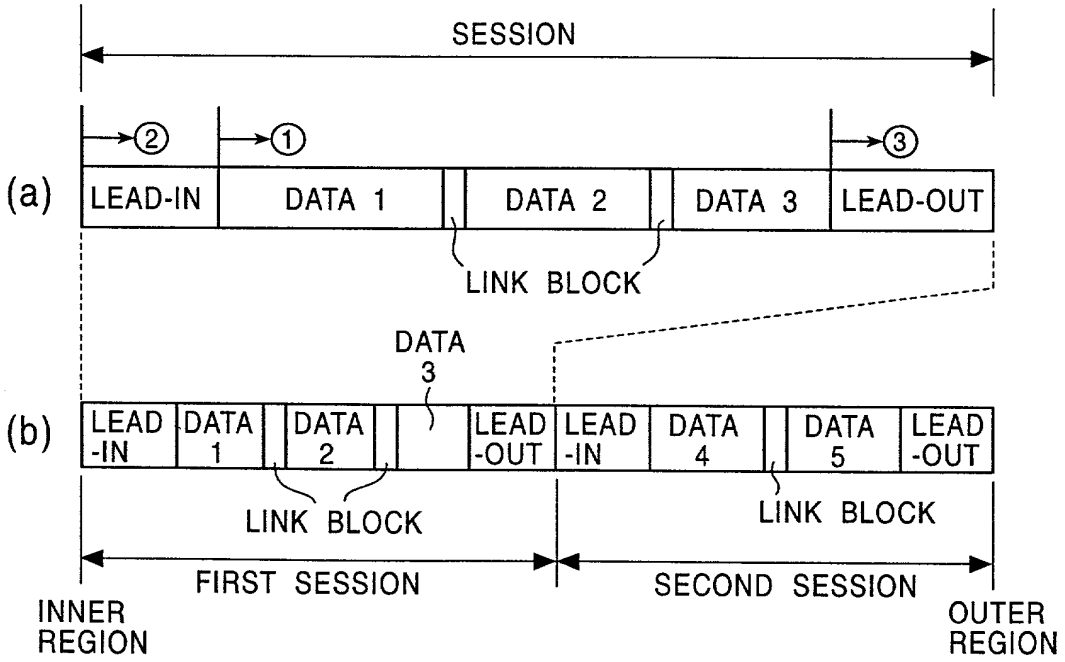

TRACK-AT-ONCE (TAO)
SESSION
(a)
②
①
③
LEAD-IN
DATA 1
DATA 2
DATA 3
LEAD-OUT
LINK BLOCK
DATA 3
(b)
LEAD -IN
DATA 1
DATA 2
LEAD -OUT
LEAD -IN
DATA 4
DATA 5
LEAD -OUT
LINK BLOCK
LINK BLOCK
FIRST SESSION
SECOND SESSION
INNER REGION
OUTER REGION

FIG. 5

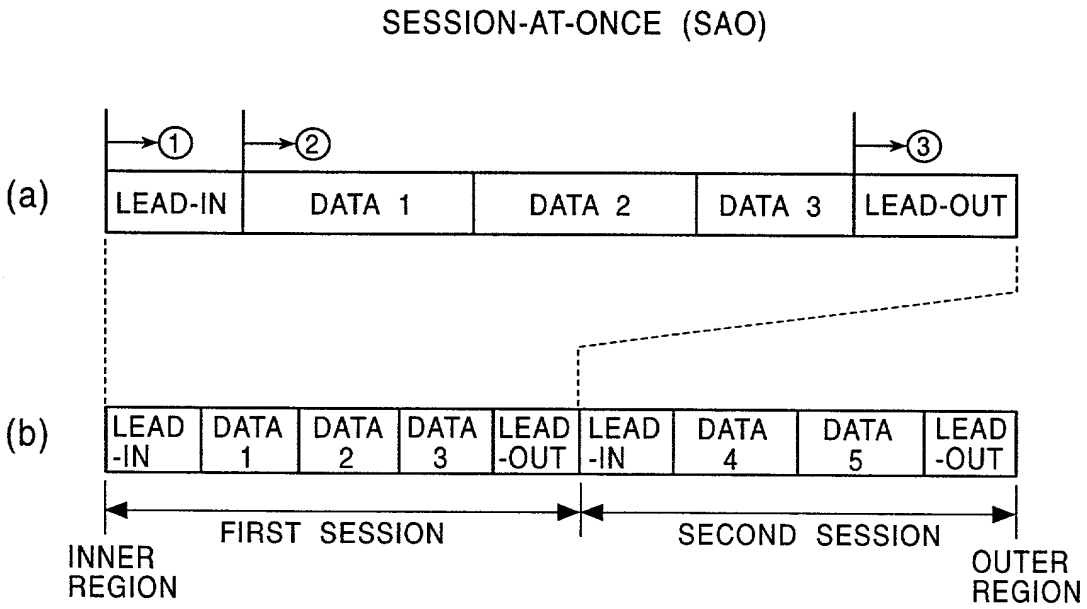

SESSION-AT-ONCE (SAO)
(a)
①
②
③
LEAD-IN
DATA 1
DATA 2
DATA 3
LEAD-OUT
(b)
LEAD -IN
DATA 1
DATA 2
DATA 3
LEAD -OUT
LEAD -IN
DATA 4
DATA 5
LEAD -OUT
FIRST SESSION
SECOND SESSION
INNER REGION
OUTER REGION

FIG. 6

byte	bit 7	6	5	4	3	2	1	0
0	Operation Code (D5h)							
1	Reserved							
2	Reserved		Page Code (000001b)					
3	Reserved							
4	Reserved							
5	Reserved							
6	Reserved							
7	(MSB) Allocation Length							
8	(LSB)							
9	Reserved							
10	Reserved							
11	Reserved							

FIG. 7

byte	bit 7	6	5	4	3	2	1	0
0	Reserved		Page Code (000001b)					
1	Page Length (28h)							
2	The kind of power supply which is connected physically at present and which can be used.							
	(Reserved)				USB/1394 /PCMCIA BUS	Dry cell	Rechar-geable battery	AC adapter
3	The kind of power supply which is actually being used at present.							
	(Reserved)				USB/1394 /PCMCIA BUS	Dry cell	Rechar-geable battery	AC adapter
4	The power supply which can be used when this drive reads data as a computer peripheral.							
	(Reserved)				USB/1394 /PCMCIA BUS	Dry cell	Rechar-geable battery	AC adapter
5	The power supply which can be used when this drive writes data as a computer peripheral.							
	(Reserved)				USB/1394 /PCMCIA BUS	Dry cell	Rechar-geable battery	AC adapter

①

FIG. 8

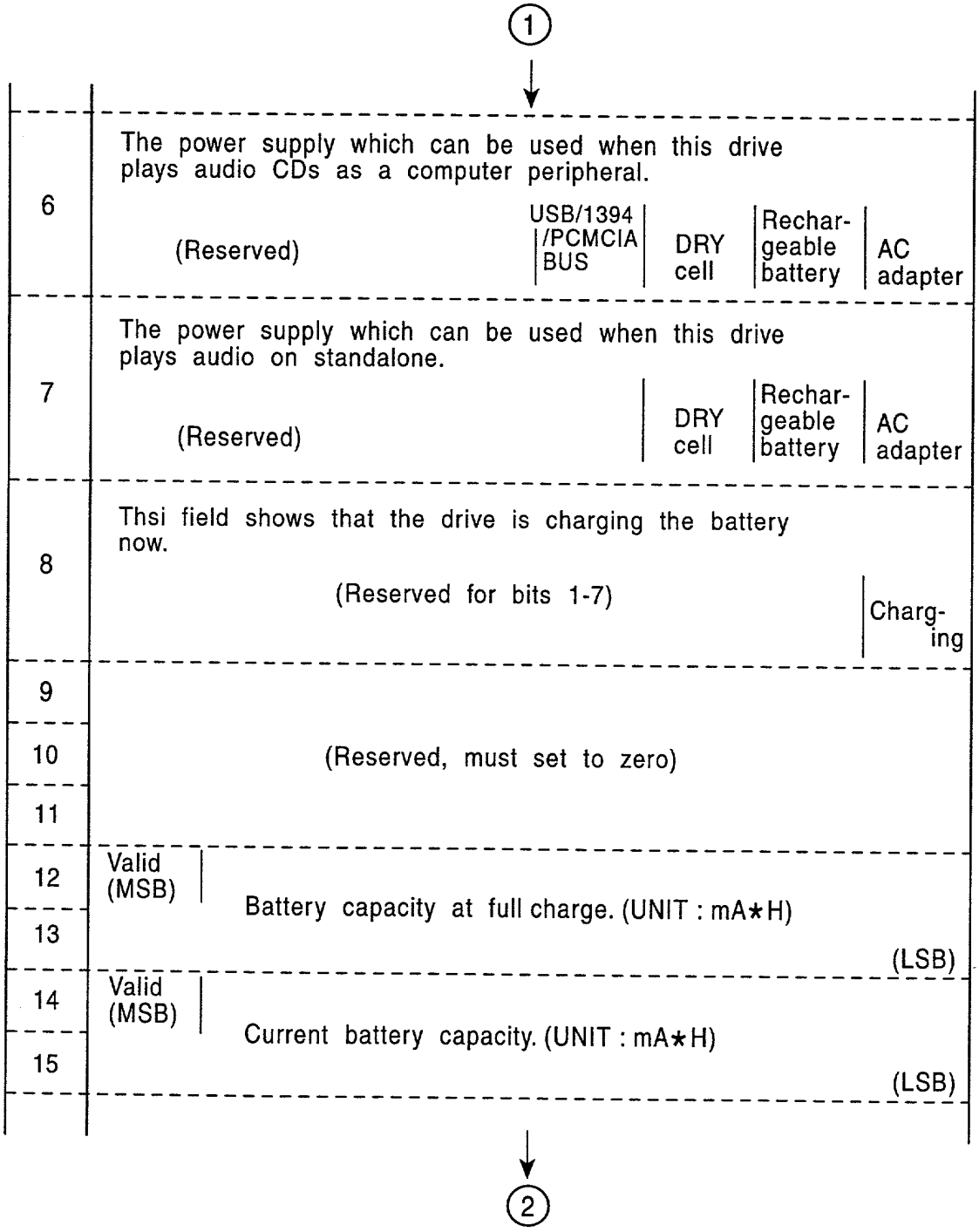
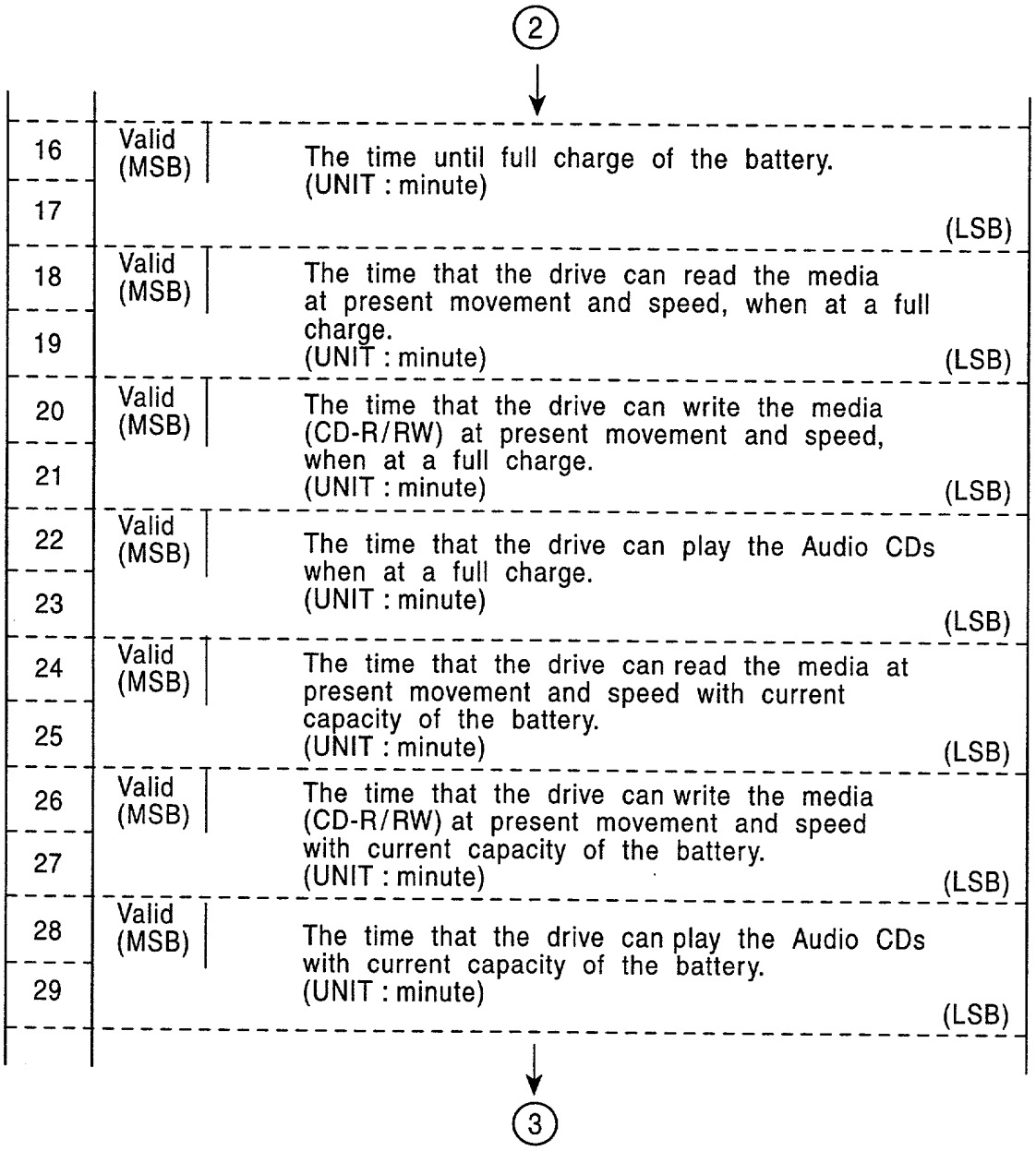

1
6
The power supply which can be used when this drive plays audio CDs as a computer peripheral.
(Reserved)
USB/1394 /PCMCIA BUS
DRY cell
Rechar-geable battery
AC adapter
7
The power supply which can be used when this drive plays audio on standalone.
(Reserved)
DRY cell
Rechar-geable battery
AC adapter
8
Thsi field shows that the drive is charging the battery now.
(Reserved for bits 1-7)
Charg-ing
9
10
11
(Reserved, must set to zero)
12
Valid (MSB)
Battery capacity at full charge. (UNIT : mA*H)
13
(LSB)
14
Valid (MSB)
Current battery capacity. (UNIT : mA*H)
15
(LSB)
2

FIG. 9



EP 2 276 039 A1

FIG. 10

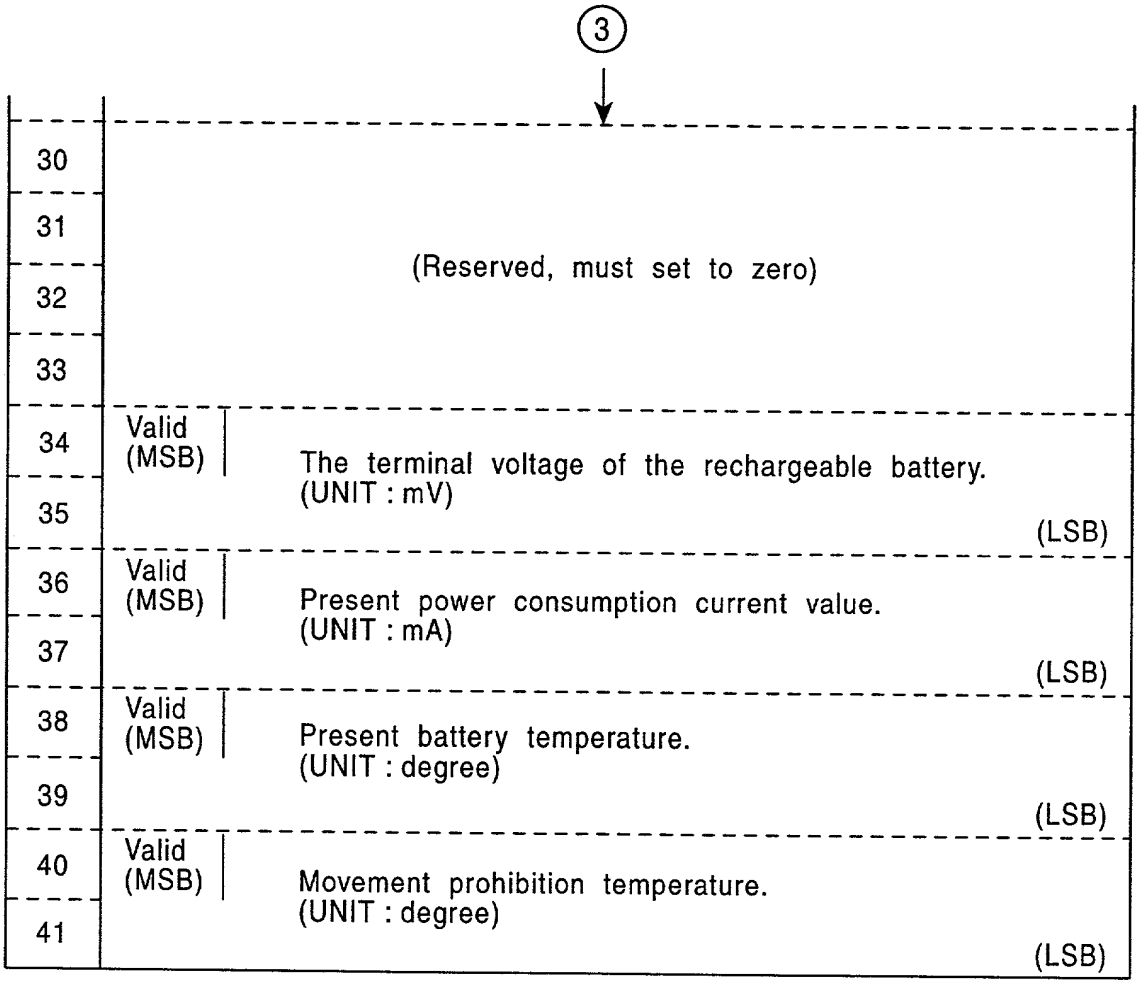

3
30
31
32
33
(Reserved, must set to zero)
34
35
Valid (MSB)
The terminal voltage of the rechargeable battery. (UNIT : mV)
(LSB)
36
37
Valid (MSB)
Present power consumption current value. (UNIT : mA)
(LSB)
38
39
Valid (MSB)
Present battery temperature. (UNIT : degree)
(LSB)
40
41
Valid (MSB)
Movement prohibition temperature. (UNIT : degree)
(LSB)

FIG. 11

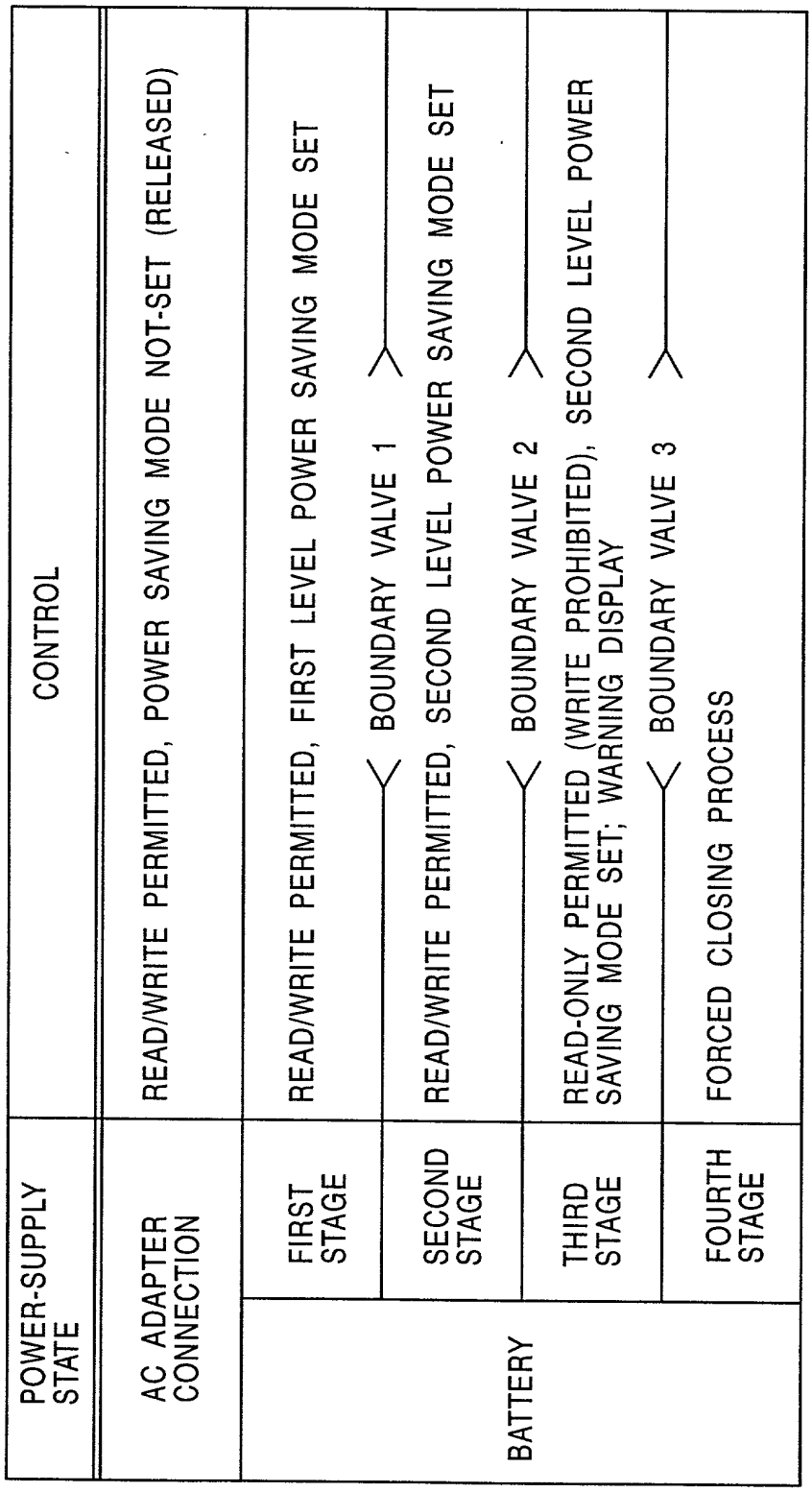

POWER-SUPPLY STATE
CONTROL
AC ADAPTER CONNECTION
READ/WRITE PERMITTED, POWER SAVING MODE NOT-SET (RELEASED)
BATTERY
FIRST STAGE
READ/WRITE PERMITTED, FIRST LEVEL POWER SAVING MODE SET
BOUNDARY VALVE 1
SECOND STAGE
READ/WRITE PERMITTED, SECOND LEVEL POWER SAVING MODE SET
BOUNDARY VALVE 2
THIRD STAGE
READ-ONLY PERMITTED (WRITE PROHIBITED), SECOND LEVEL POWER SAVING MODE SET; WARNING DISPLAY
BOUNDARY VALVE 3
FOURTH STAGE
FORCED CLOSING PROCESS

FIG. 12

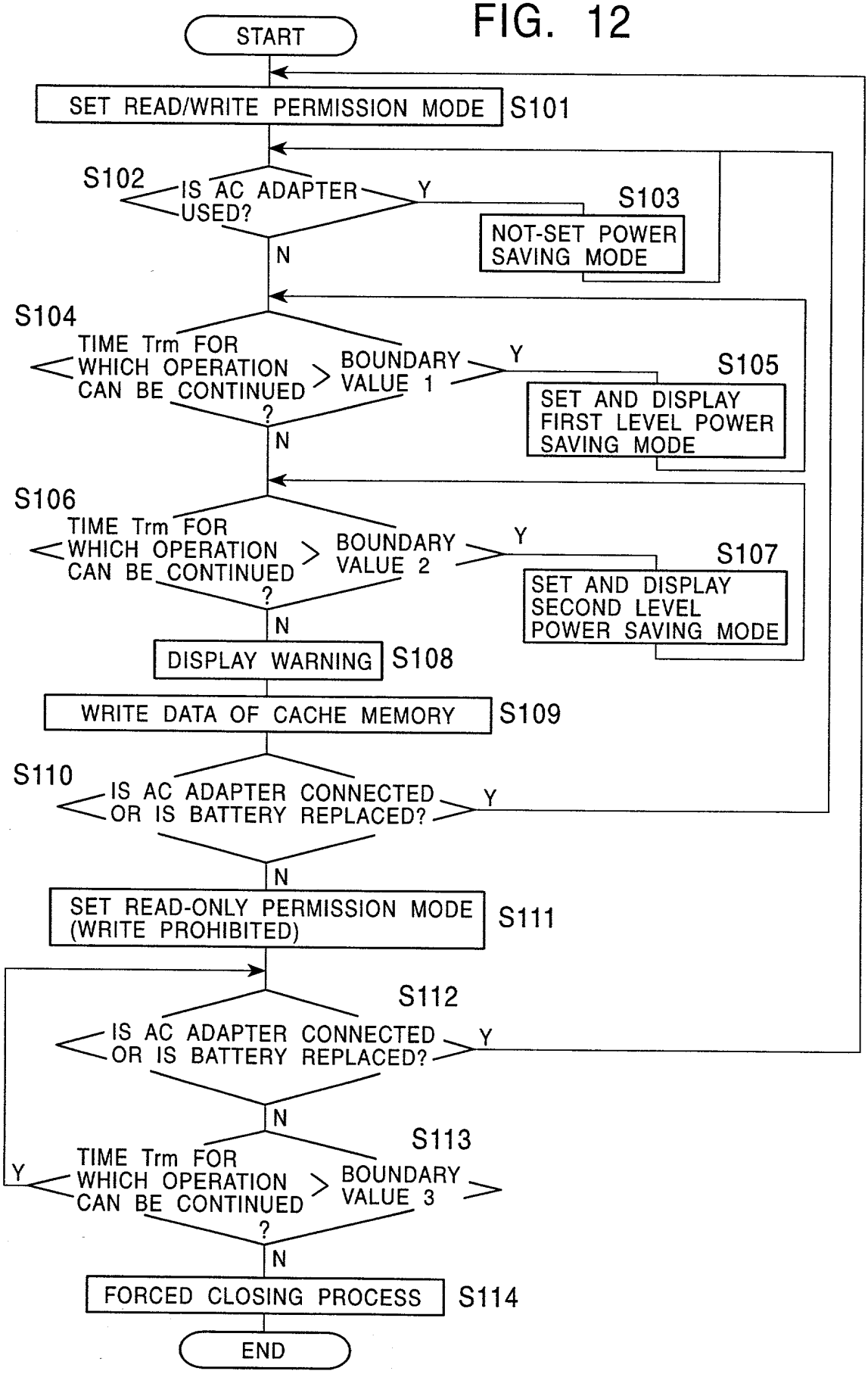

START
SET READ/WRITE PERMISSION MODE
S101
S102
IS AC ADAPTER USED?
Y
S103
NOT-SET POWER SAVING MODE
N
S104
TIME Trm FOR WHICH OPERATION CAN BE CONTINUED
BOUNDARY VALUE 1
Y
S105
SET AND DISPLAY FIRST LEVEL POWER SAVING MODE
N
S106
TIME Trm FOR WHICH OPERATION CAN BE CONTINUED
BOUNDARY VALUE 2
Y
S107
SET AND DISPLAY SECOND LEVEL POWER SAVING MODE
N
DISPLAY WARNING
S108
WRITE DATA OF CACHE MEMORY
S109
S110
IS AC ADAPTER CONNECTED OR IS BATTERY REPLACED?
Y
N
SET READ-ONLY PERMISSION MODE (WRITE PROHIBITED)
S111
S112
IS AC ADAPTER CONNECTED OR IS BATTERY REPLACED?
Y
N
S113
TIME Trm FOR WHICH OPERATION CAN BE CONTINUED
BOUNDARY VALUE 3
Y
N
FORCED CLOSING PROCESS
S114
END

FIG. 13

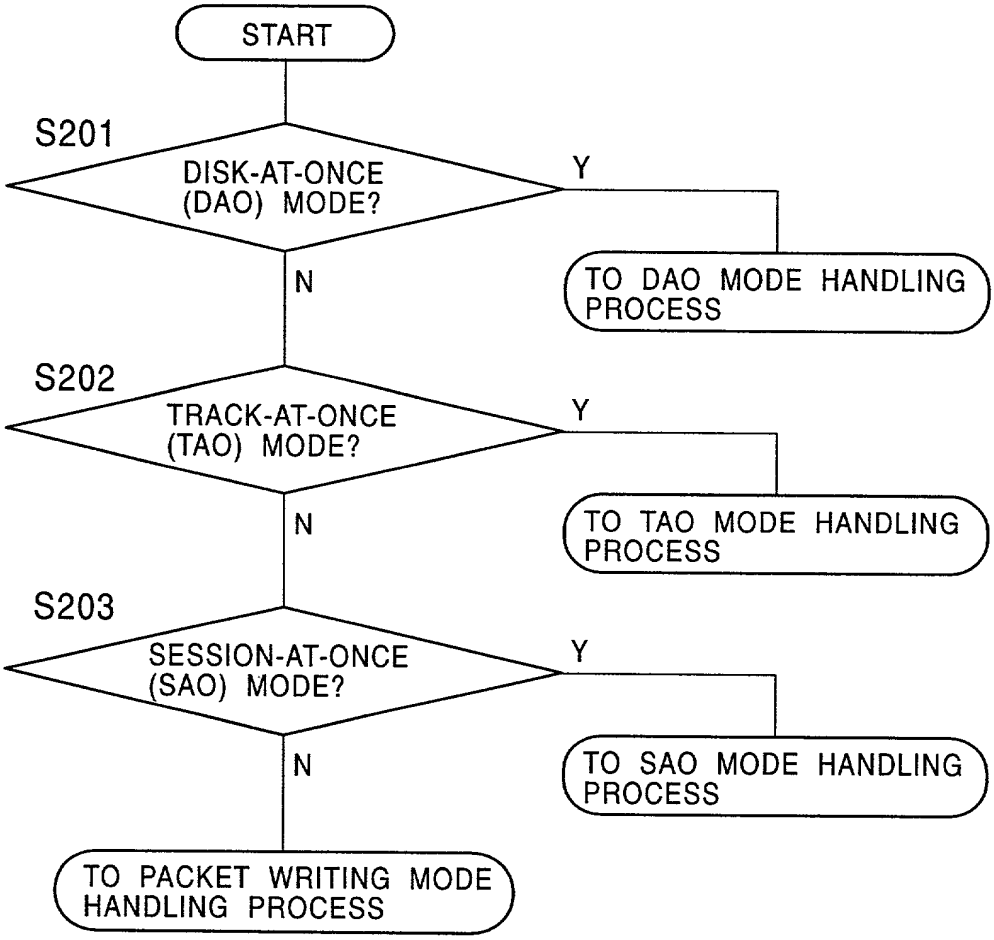

START
S201
DISK-AT-ONCE (DAO) MODE?
Y
TO DAO MODE HANDLING PROCESS
N
S202
TRACK-AT-ONCE (TAO) MODE?
Y
TO TAO MODE HANDLING PROCESS
N
S203
SESSION-AT-ONCE (SAO) MODE?
Y
TO SAO MODE HANDLING PROCESS
N
TO PACKET WRITING MODE HANDLING PROCESS

FIG. 14

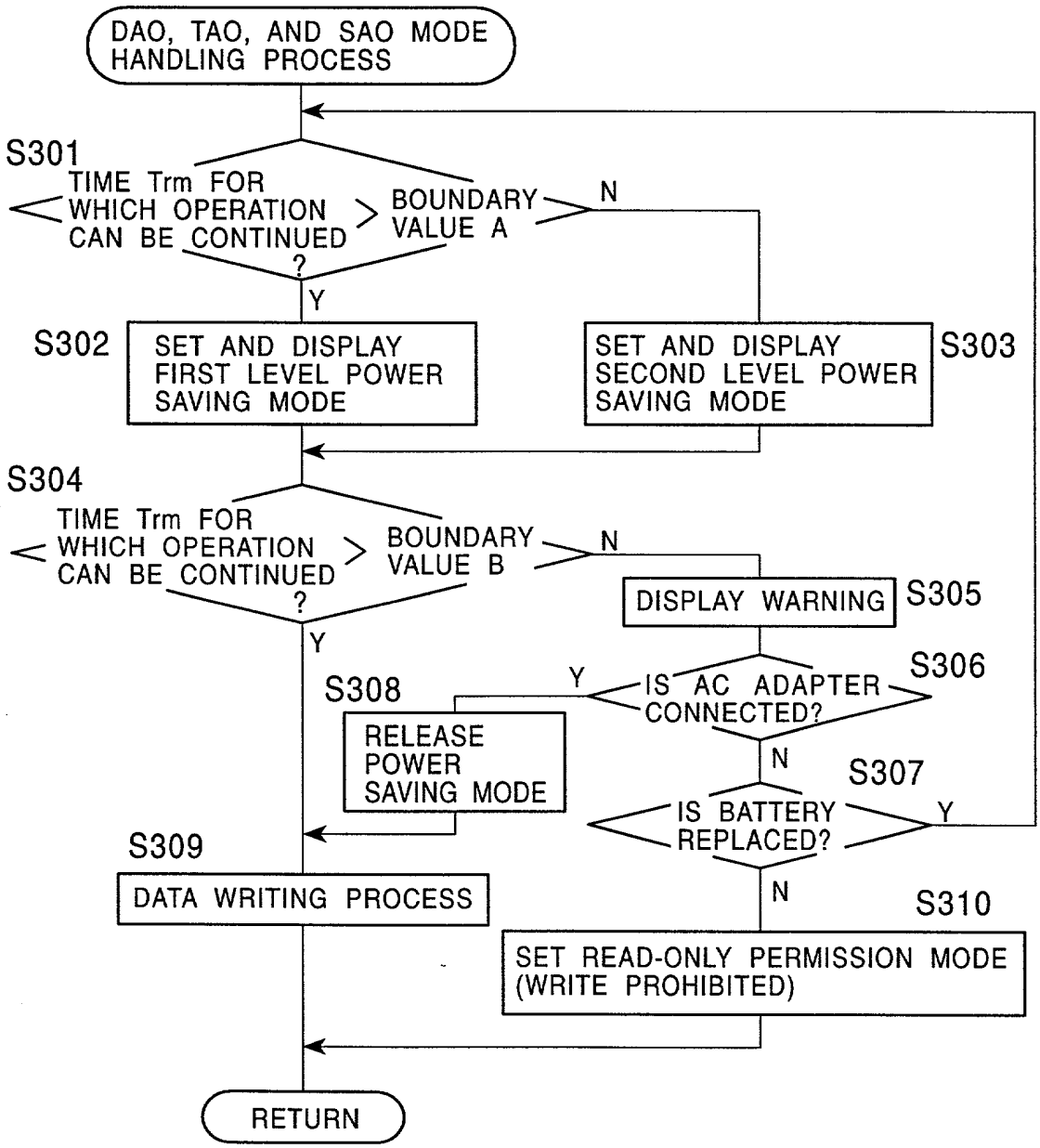

DAO, TAO, AND SAO MODE HANDLING PROCESS
S301
TIME Trm FOR WHICH OPERATION CAN BE CONTINUED
BOUNDARY VALUE A
N
Y
S302
SET AND DISPLAY FIRST LEVEL POWER SAVING MODE
SET AND DISPLAY SECOND LEVEL POWER SAVING MODE
S303
S304
TIME Trm FOR WHICH OPERATION CAN BE CONTINUED
BOUNDARY VALUE B
N
Y
DISPLAY WARNING
S305
S306
IS AC ADAPTER CONNECTED?
Y
N
S308
RELEASE POWER SAVING MODE
S307
IS BATTERY REPLACED?
Y
N
S309
DATA WRITING PROCESS
S310
SET READ-ONLY PERMISSION MODE (WRITE PROHIBITED)
RETURN

FIG. 15

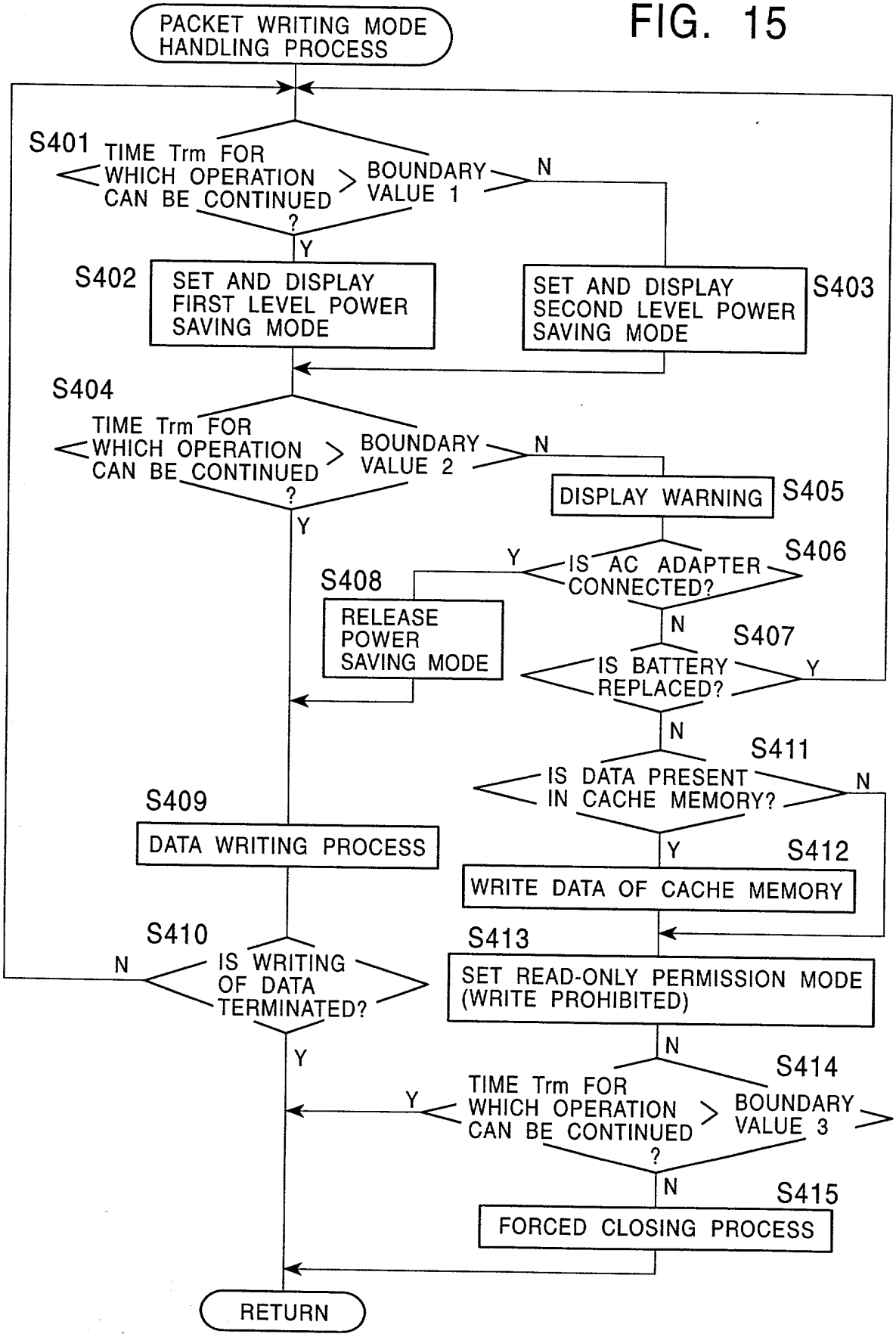
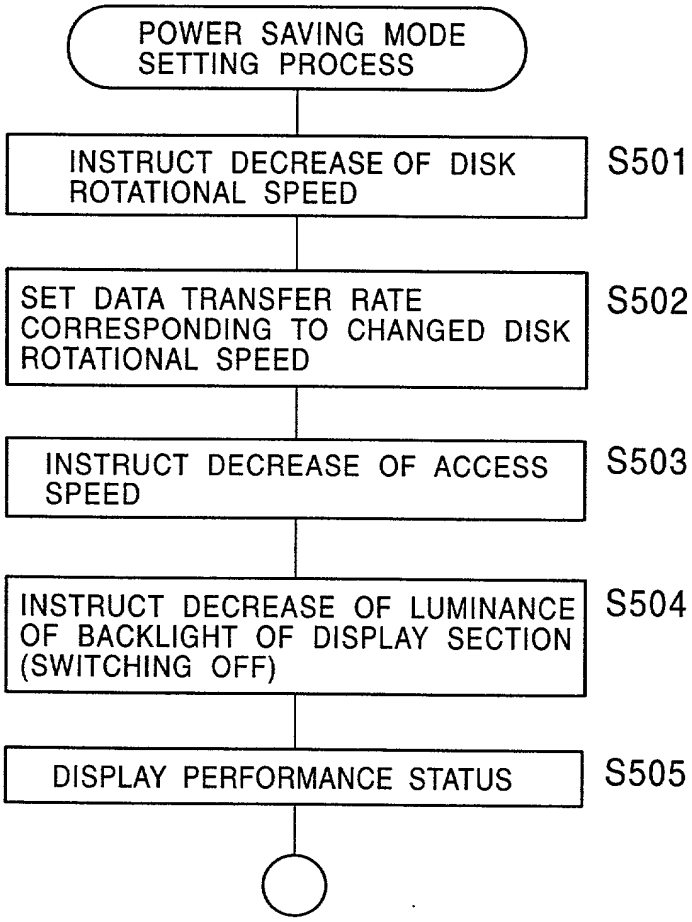

PACKET WRITING MODE HANDLING PROCESS
S401
TIME Trm FOR WHICH OPERATION CAN BE CONTINUED
BOUNDARY VALUE 1
N
Y
S402
SET AND DISPLAY FIRST LEVEL POWER SAVING MODE
SET AND DISPLAY SECOND LEVEL POWER SAVING MODE
S403
S404
TIME Trm FOR WHICH OPERATION CAN BE CONTINUED
BOUNDARY VALUE 2
N
Y
DISPLAY WARNING
S405
S406
IS AC ADAPTER CONNECTED?
Y
N
S408
RELEASE POWER SAVING MODE
S407
IS BATTERY REPLACED?
Y
N
S411
IS DATA PRESENT IN CACHE MEMORY?
N
Y
S409
DATA WRITING PROCESS
S412
WRITE DATA OF CACHE MEMORY
S410
IS WRITING OF DATA TERMINATED?
N
Y
S413
SET READ-ONLY PERMISSION MODE (WRITE PROHIBITED)
N
S414
TIME Trm FOR WHICH OPERATION CAN BE CONTINUED
BOUNDARY VALUE 3
Y
N
S415
FORCED CLOSING PROCESS
RETURN

FIG. 16



EP 2 270 636 A1